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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/785,084	02/25/2004	Ichiro Tanaka	Q79955	8542
23373	7590	12/17/2004		EXAMINER
SUGHRUE MION, PLLC				SAMPLE, DAVID R
2100 PENNSYLVANIA AVENUE, N.W.				
SUITE 800			ART UNIT	PAPER NUMBER
WASHINGTON, DC 20037			1755	

DATE MAILED: 12/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/785,084	TANAKA ET AL.
	<b>Examiner</b> David Sample	<b>Art Unit</b> 1755

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

**A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.**

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) Responsive to communication(s) filed on 21 September 2003.
- 2a) This action is FINAL.                    2b) This action is non-final.
- 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) Claim(s) 1-13 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) Claim(s) 11-13 is/are allowed.
- 6) Claim(s) 1-10 is/are rejected.
- 7) Claim(s) \_\_\_\_\_ is/are objected to.
- 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) The specification is objected to by the Examiner.
- 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
 Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
 Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) All    b) Some \* c) None of:
  1. Certified copies of the priority documents have been received.
  2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- |   |   |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)  | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date <u>20040921</u> . | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 102*

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Ghosh et al. (US Patent No. 5,336,282).

Ghosh et al. discloses a stabilized zirconia ceramic which has the tetragonal crystal structure. See the abstract and col. 6, Example 1. The examiner calculates that the (111) peak of the Ghosh et al. ceramic has a full width at half maximum of 0.5°. See Example 1 and Figure 4. The examiner arrive at this number as follows:

The (111) peak of the tetragonal zirconia is the peak near 30° two theta. See figures 1 and 2 or the specification. In Figure 4 of Ghosh et al. this peak has an intensity of about 3950 including background radiation (i.e., the baseline). The examiner calculates that the background radiation accounts for about 350 of the total intensity and subtracted this out to arrive at total peak intensity of 3600. Half of 3600 is 1800. The background is added back in to arrive at an intensity at half maximum including the background radiation of 2150. Where a horizontal line at an intensity of 2150 intersects the (111) peak, two vertical parallel lines were dropped to the x-axis of the plot. The distance between the lines was estimated to be about 0.5°. This FWHM anticipates with ranges recited in claims 1-3.

As to claim 4, the reference discloses that the ceramic is entirely tetragonal zirconia. See col. 6, lines 51-64.

As to claim 5, the reference fails to disclose the grain size of the sintered ceramic. However, the grain size of a ceramic is inversely proportional to the FWHM of the ceramic. A wider FWHM results in smaller grains. Since the FWHM of the ceramic of the is the same as FWHM recited in claims 1-3, the examiner assumes that the claimed grain size is inherent to the product of Ghosh et al. See MPEP 2112.

As to claims 8 and 9, Example 1 of the reference employs  $\text{Y}_2\text{O}_3$  as a stabilizer. See col. 6, example 1.

The reference fails to disclose all of the details of the x-ray diffraction measurement as recited in claim 1. However, the product of Ghosh et al. exhibits the claimed FWHM. This is strong evidence that the ceramic of Ghosh et al. would exhibit the same FWHM when subjected to the x-ray diffraction parameters of claim 1. In other words, since Ghosh et al. exhibits the claimed FMHM, the examiner assumes that the ceramic of Ghosh et al. would inherently exhibit the same FWHM when subjected to the x-ray diffraction parameters of claim 1. See MPEP 2112.

#### *Allowable Subject Matter*

Claims 11-13 are allowed. The prior art fails to disclose or suggest a method of making a zirconia ceramic which employs a zirconia powder having a particle size of 0.1 to 0.6  $\mu\text{m}$  and which is in the shape of a polyhedron.

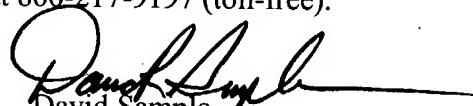
***Conclusion***

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to David Sample whose telephone number is (571)272-1376. The examiner can normally be reached on Monday to Thursday and alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mark Bell can be reached on (572)272-1362. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



David Sample  
Primary Examiner  
Art Unit 1755